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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,405	07/15/2004	Masashi Gabe	953.1017	2649

7590 04/21/2005
Staas & Halsey
700 Eleventh Street N W
Suite 500
Washington, DC 20001

EXAMINER

NGUYEN, TU MINH

ART UNIT PAPER NUMBER

3748

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,405

Applicant(s)

GABE ET AL.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>071504</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. An Applicant's Preliminary Amendment filed on July 15, 2004 has been entered. Claims 3-5 and 8-10 have been amended. Overall, claims 1-10 are pending in this application.

Specification

2. The abstract of the disclosure is objected to because of the use of legal phrase "means" on lines 8-10. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 1 and 6 are objected to because of the following informalities:
 - Claim 1, line 5 of the claim, "capable of" renders the claim indefinite and should be changed to --adapted for--.
 - Claim 6, line 7 of the claim, "capable of" should be changed to --adapted for--.Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pott (U.S. Patent 6,164,064) in view of Hirota et al. (U.S. Patent 6,233,925).

Re claims 1 and 6, as shown in Figures 1 and 3, Pott discloses an exhaust gas purifying system and a method of exhaust gas purification to be carried out with use of said exhaust gas purifying system provided with a NO_x occlusion reduction type catalyst (3) in an exhaust passage (2) of an engine (1) and a control unit (not shown but obviously must have) comprising a normal control operation means (normal mode of operation (lines 63-64 of column 1 and lines 26-29 of column 4)), a regeneration control initiation judging means (lines 55-56 of column 1) for detecting a regeneration control initiation timing for the NO_x occlusion reduction type catalyst, a catalyst activation control operation means (lines 57-60 of column 1), and a rich-burn control operation means (lines 61-62 of column 1) adapted for lowering the concentration of oxygen in exhaust gas, which comprises performing a catalyst activation control operation (lines 57-60 of column 1) by the catalyst activation control operation means when it is judged by the regeneration control initiation judging means (lines 55-56 of column 1) that a regeneration control for the regeneration of the NO_x occlusion reduction type catalyst is to be initiated and thereafter executing a rich-burn control operation (lines 61-62 of column 1) accompanying a recirculation of EGR gas (lines 17-25 of column 4) by the rich-burn control operation means to thereby regenerate the NO_x occlusion reduction type catalyst.

Pott, however, fails to disclose that the NO_x occlusion reduction type catalyst has a catalyst metal and a NO_x occluding substance.

As illustrated in Figure 1 and 12, Hirota et al. teach that it is conventional in the art to utilize a NO_x occlusion reduction type catalyst (10) having a catalyst metal (noble metal such as platinum) and a NO_x occluding substance (alkali-earth metal such as barium) (lines 39-64 of column 4). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the NO_x occlusion reduction type catalyst taught by Hirota et al. in the system and method of Pott, since the use thereof would have been routinely practiced by those with ordinary skill in the art.

Re claims 2 and 7, the modified system and method of Pott comprise performing a burning control operation in the nearly stoichiometric air-fuel ratio (curve III between point A and E) and performing the fuel injection into the cylinder through a multi-stage injection and an early injection, by the catalyst activation control operation (lines 1-7 of column 4).

Re claims 3 and 8, in the modified system and method of Pott, the NO_x occlusion reduction type catalyst comprises a reducer occluding substance (the NO_x occlusion reduction type catalyst in Hirota et al. comprises zeolite as a reducer occluding substance (lines 1-4 of column 12)).

Re claims 4 and 9, the modified system and method of Pott comprise performing the catalyst activation control operation (portion between point A and E in Figure 3) to control the torque generated by the engine by controlling the intake air into the engine, while performing a burning control operation in the nearly stoichiometric air-fuel ratio (see curve III in Figure 3 and lines 1-7 of column 4).

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Re claims 5 and 10, the modified system and method of Pott comprise performing the rich-burn control operation (portion between point E and F in Figure 3) to recirculate EGR gas to generate an exhaust gas which is in a fuel-rich state (see curve III between point E and F in Figure 3) and to control the torque generated by the engine by controlling the intake air into the engine (lines 17-25 of column 4).

Prior Art

6. The IDS (PTO-1449) filed on July 15, 2004 has been considered. An initialized copy is attached hereto.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents: Yokota et al. (U.S. Patent 6,269,634), Ito et al. (U.S. Patent 6,378,297), Surnilla et al. (U.S. Patent 6,553,757), Takemura et al. (U.S. Patent 6,751,948), and Wachi et al. (U.S. Patent 6,763,657) further disclose a state of the art.

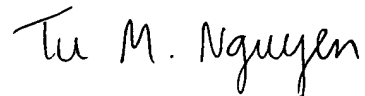
Communication

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN

Tu M. Nguyen

April 17, 2005

Primary Examiner

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